

REMARKS

Claims 1-29 will be pending upon entry of the present amendment. Claims 27-29 are new. Support for the new claims can be found in many parts of the original specification and claims and particularly on page 15, lines 9-24. No new matter is being entered.

The applicants appreciate the indication that claims 3-11, 14-22, and 25-26 are directed to allowable subject matter. These claims are not be placed in independent form because the applicants respectfully submit that the independent claims from which they depend are in condition for allowance as explained in more detail below.

One embodiment of the present invention is directed to a method of coding a digital audio data stream using an AC-3 encoding system implemented on a fixed point digital signal processor having plural levels of computation precision. In contrast to prior art AC-3 encoding methods, the method employs different computation precision levels for the plurality of computation phases that comprise the method. For example, the transient detection phase may use single precision (16 bit) for data and coefficients, while forward transform windowing uses single precision (16 bit) for data and double precision (32 bit) for coefficients, frequency transformation uses double precision for data and single precision for coefficients. It is important to note that the same audio data stream is subjected to both single precision and double precision computations to produce coded output data.

Claims 1-2, 12-13, and 23-24 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,208,671 to Paulos et al. ("Paulos") in view of U.S. Patent No. 5,787,025 to Muwafi et al. ("Muwafi").

Paulos and Muwafi do not teach or suggest the invention recited in claim 1, as amended. Claim 1 recites a method that includes first and second computation stages involving arithmetic operations using first and second level of computation precision, respectively. In addition, claim 1 recites that the first computation stages produces intermediate audio data and the second computation stage operates on the intermediate data to produce coded audio data.

Paulos and Muwafi do not teach or suggest such computation stages. As noted by the Examiner, Paulos discloses a sampling rate converter that converts a digital signal having a first sampling rate to a digital signal having a second sampling rate. However, such a conversion of sampling rates does not imply a change in computation precision of arithmetic operations. As

is known in the art, computation precision refers to the number of bits used to represent a value (See attached definition of “precision” from the Microsoft Press Computing Dictionary). That is consistent with the use of precision in both the present application and in Muwafi. Paulos does not appear to mention any level of precision or otherwise imply a change in such precision.

Given that Paulos does not teach a change in computation precision, the combination of Paulos with Muwafi does not teach or suggest the invention recited in claim 1. Muwafi discloses an arithmetic manipulation unit (AMU) that has two operation modes: single precision mode and double precision mode. However, Muwafi does not suggest using both precision mode in a transform encoding process.. Instead, Muwafi only suggests using either single precision mode or double precision mode – not both precision modes for the same digital data. Thus, a hypothetical combination of Paulos with Muwafi would at best change sampling rates using the single precision mode or the double precision mode, but not both.

For the foregoing reasons, claims 1-2 are nonobvious in view of Paulos and Muwafi.

Although the language of claims 12-13 and 23- 24 is not identical to that of claim 1, the nonobviousness of claims 13-26 will be apparent in view of the above discussion.

New claims 27, 28, and 29 depend on claims 23, 1, and 13, respectively, and thus are nonobvious for the reasons expressed above. In addition, claims 27-29 further define the first and second levels of computation precision as involving data elements of first and second numbers of bits. As discussed above, a change in sampling rates as specified in Paulos does not imply a change in the number of bits of data elements involved in arithmetic operations. Accordingly, new claims 27-29 further distinguish the invention from the cited prior art.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Application No. 09/830,441
Reply to Office Action dated June 29, 2005

All of the claims remaining in the application are now clearly allowable.
Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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